PhD in Statistics

Degree Requirements

A minimum of 72 hours are required. A student's doctoral program committee must approve all course work used to satisfy the credit-hour requirement and may require additional course work beyond these minimums. The doctoral committee may recommend that up to 30 hours of post-baccalaureate graduate credit from an accredited university be transferred toward the total hours required for the doctoral degree, subject to approval by the Graduate School.

The doctoral program has considerable flexibility. Each student's adviser and committee will determine a suitable course of study. However, all students must take the following courses or their equivalents at comparable institutions.

Required courses:

STAT 8710	Intermediate Mathematical Statistics I	3
STAT 8720	Intermediate Mathematical Statistics II	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
STAT 9310	Theory of Linear Models	3
STAT 9710	Advanced Mathematical Statistics I	3

Before taking the comprehensive examination, students should complete six courses from the list below, taken at MU or at comparable institutions OR five courses from the list below in addition to BOTH Statistics 8330 and 8640. Different 9100s can be counted more than once. Other 9000-level courses may be substituted at the discretion of the student's doctoral program committee.

Select six of the following:

STAT 9100	Recent Developments in Statistics
STAT 9250	Statistical Computation and Simulation
STAT 9370	Multivariate Analysis
STAT 9410	Survival Analysis
STAT 9530	Data Mining and Machine Learning Methods
STAT 9640	Bayesian Analysis II
STAT 9720	Advanced Mathematical Statistics II
STAT 9810	Advanced Probability
STAT 9820	Stochastic Processes

Qualifying Examination

All doctoral students must pass the qualifying exam, which is offered in June (and August and if someone fails in June) each year. The exam consists of two parts, one covering STAT 8710 and STAT 8720 (Statistical Inference), and a second part covering STAT 8310 and STAT 8320 (Data Analysis). All doctoral students must take the exams at the first opportunity after taking the required courses, typically in early June after the end of their second semester in the program. Students have two attempts to pass each part.

Exam Administration

The qualifying examination committee would consist of the Director of Graduate Studies (DGS), an Examination Committee Chairman and at least 3-4 additional committee members, including at least one representative who has taught 8310/8720; the exact number is decided such that there is a minimum of two people on the committee writing questions for each part (8310/20 and 8710/20). Thus, the committee is responsible for writing all examination questions, but will consult with others who have taught the class most recently to ensure proper coverage of the material.

The committee will be appointed by the Chair of the Department. With the exception of the DGS, all committee members will serve a maximum of two-year terms (with no member other than the DGS serving two consecutive terms). In cases where it is not possible to staff the committee with representatives of 8310/20 and 8710/20, the faculty who have taught those classes will serve as consultants to the committee.

Upon successful completion of the qualifying examination (typically after two or three semesters in the program) and the required coursework, the Ph.D. candidate may request to be awarded the M.A. degree from the Department of Statistics, provided all the course requirements have been met.

Doctoral Committee

Within one semester of passing the qualifying examination, a student must choose a doctoral program committee in consultation with his or her adviser. This committee shall consist of at least four members, at least three from the doctoral faculty in statistics and an additional doctoral faculty member from either statistics or another MU doctoral program. The committee members from statistics must include at least two faculty in addition to the student's adviser(s), so students who are co-advised by two statistics faculty must have a total of at least five committee members.

Comprehensive Examination

Following the graduate school rules, the comprehensive examination is the most advanced posed by MU. It consists of written and oral sections. It must be completed at least seven months before the final defense of the dissertation. The two sections of the examination must be completed within one month. The student must be enrolled to take this examination. It is to be administered only when MU is officially in session.

The written portion of the exam will be arranged and supervised by the student's major advisor(s). The exam will be given up to one year after the student has completed the required Ph.D. courses. Questions are prepared by each of the student's committee members (doctoral advisory committee). The comprehensive exam is NOT to be used as a dissertation proposal.

For the comprehensive examination to be completed successfully, the doctoral advisory committee must vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote.

A failure of either the written or oral section of the exam constitutes failure of the comprehensive exam. If a failure is reported, the committee also must include in the report an outline of the general weaknesses or deficiencies of the student's work. The student and the committee members are encouraged to work together to identify steps the student might take to become fully prepared for the next examination.

A student who fails may not take a second comprehensive examination for at least 12 weeks. Failure to pass two comprehensive examinations automatically prevents candidacy.

Dissertation

A dissertation, prepared under the direction of a dissertation supervisor, is required. The dissertation should be presented in an open seminar as part of the final examination, which is be conducted by the final examination committee. The dissertation should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

Dissertation proposal: The student's major advisor(s) is required to convene the doctoral advisory committee at least 5 months before the dissertation defense date, and more than 2 months after the successful completion of the comprehensive examination, in order to review the dissertation proposal and progress of the Ph.D. candidate as he/she prepares for their thesis defense. The candidate shall present the current status of his/her thesis and solicit input and feedback from the committee members.

Ph.D. Timeline Summary

The process and timeline for a successful Ph.D. candidacy can be summarized as follows:

Qualifying Examination:

After the first year in the department, and having completed STAT 8710, STAT 8720, STAT 8310, and STAT 8320, the candidate must take the qualifying examination (typically administered in the beginning of June). Should the candidate fail, they have to take the exam again, a few days before the next semester begins (typically in early August). The candidate may now choose their advisor (if they do not have one already).

Comprehensive Examination:

This examination must take place up to one year after the student has completed the required Ph.D. courses (see the section on required courses).

Dissertation Proposal: The student's major advisor(s) is required to convene the doctoral advisory committee at least 5 months before the dissertation defense date, and after the successful completion of the comprehensive examination.

Dissertation Defense: This is the final examination for the Ph.D. candidate. It is given at least 5 months after the dissertation proposal. Note that the Graduate School rules require at least 7 months between the comprehensive examination and the thesis defense.

Additional Requirements

Additional requirements for the PhD in statistics are determined by the student's program committee and the director of graduate studies.

Admission Criteria

Fall deadline: January 15
Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	535

- Minimum GPA: 3.0 in math and statistics to enter PhD program
- Master's degree from accredited college or university in related area

Before entering the graduate program, a student should have a background that includes three semesters of calculus (or equivalent), one semester of matrix theory, and at least one post-calculus course in probability and statistics. Some required courses at the 7000 level not taken as an undergraduate may be taken for graduate credit as part of the graduate program.

Required Application Materials

Submit all materials electronically using the Graduate School website at *the Graduate School*.

- All required Graduate School documents and
- 3 letters of recommendation
- Letter of intent